UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,153	07/20/2001	Yoichi Mizuno	16869N-029300US	4313

20350 7590 10/27/2003

TOWNSEND AND TOWNSEND AND CREW, LLP
TWO EMBARCADERO CENTER
EIGHTH FLOOR
SAN FRANCISCO, CA 94111-3834

EXAMINER	
BAKER, PAUL A	

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 10/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/910,153	MIZUNO ET AL.	
	Examiner	Art Unit	
	Paul A Baker	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 starts by sub-defining the logical volume number, but then transforms into actions performed upon the logical volume number, this lends to confusion when attempting to understand the claim limitations, all claim limitations expressed after line 26 on page 25 should be placed in a separate claim dependent upon claim 2.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Stallmo et al. US Patent 5,875,456.

In regards to claim 1, Stallmo discloses a computer system comprising:

at least one computer (figure 1 element 102);

a storage having a logical volume which can be used by the computer; and (figure 1 element 110)

a control utility for instructing a change in a logical volume of the storage, (figure 1 element 106)

wherein said computer has logical volume recognizing means for recognizing a construction change in the logical volume in said storage, (figure 17 element 1702)

said storage has logical volume control means for controlling the construction of the logical volume, and (figure 17 elements 1704-1708)

the logical volume control means has a logical volume number map describing logical volume construction information. (fiure 19)

In regards to claim 2, Stallmo discloses said logical volume number map includes:

a logical volume number seen from said computer (column 18 line 17);

a logical volume number in said storage (column 18 line 16); and

logical volume number combining information describing a combining relation between the logical volume number seen from the computer and the inner logical volume number of said storage (column 18 lines 18-24),

according to an instruction from said control utility, said logical volume control means describes a new combination relation between the logical volume number seen

from the computer and the inner logical volume number of the storage into the logical volume number map with respect to an inner logical volume of the storage, of which correspondence with the computer has not been defined, thereby charging the logical volume construction (figure 20), and

the construction change of the logical volume assigned to said computer is recognized by said logical volume recognizing means (figure 20 element 2010).

In regards to claim 3, Stallmo discloses the number of blocks indicative of the size of said inner logical volume is described in said logical volume number map (column 18 lines 18-20), and

when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including the immediately preceding inner logic volume is used as the top address of each inner logical volume (figure 19 elements 1902, 1904, 1906) .

In regards to claim 4, Stallmo discloses the number of blocks indicative of the size of said inner logical volume is described in said logical volume number map (column 18 lines 18-20), and

when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including immediately preceding inner logic volume is used as the top address of each inner logical volume (figure 19 elements 1902, 1904, 1906).

In regards to claim 5, Stallmo discloses a computer system comprising:

at least one computer (figure 1 element 102);

a storage having a logical volume which can be used by said computer (figure 1 element 110); and

a control utility for instructing a change in a logical volume construction of said storage (figure 1 element 106),

wherein said computer has logical volume recognizing means for recognizing a construction change of the logical volume in said storage (figure 17 element 1702),

said storage has logical volume control means for controlling the construction of the logical volume, and the logical volume control means has a logical volume number map and copy means for copying said logical volume (figure 17 elements 1704-1708), and

said logical volume control means compares a capacity of an undefined inner logical volume area and a capacity required by said control utility with each other by using data of said logical volume number map in accordance with an instruction from said control utility, and only in the case where the capacity of the undefined inner logic volume area is larger, a new inner logical volume is defined in said undefined inner logical volume area, data recorded in the area of the logical volume number designated by said control utility is copied into said undefined inner logical volume area, and a new inner logical volume number is set in a newly defined inner logical volume area in response to completion of the copying (figure 13 a).

In regards to claim 6, Stallmo discloses said logical volume number map, when a new inner logical volume number is set in the newly defined inner logical volume area, an area corresponding to the logical volume number designated by said control utility is changed to an inner logical volume whose correspondence with said computer is not defined (figure 13a).

In regards to claim 7, Stallmo discloses said logical volume control means allows said computer to access said storage on both an area corresponding to a logical volume number designated by said control utility and an inner logical volume area newly defined while the copying operation by said copy means is performed (column 5 lines 41-43).

In regards to claim 8, Stallmo discloses a computer system comprising:

at least one computer (figure 1 element 102);

a storage having a logical volume which can be used by said computer (figure 1 element 110); and

a control utility for instructing a change in a logical volume construction of said storage (figure 1 element 106),

wherein said computer has logical volume recognizing means for recognizing a construction change of the logical volume in said storage (figure 17 element 1702),

said storage has logical volume control means for controlling the construction of the logical volume, and the logical volume control means has a logical volume number

map in which construction information of logical volumes is described (figure 19) and copy means for copying said logical volumes (figure 17 elements 1704-1708),

according to an instruction from said control utility, said logical volume control means compares a capacity of an undefined inner logical volume area and a capacity required by said control utility with each other by using data of said logical volume number map (figure 23),

in the case where the capacity of the undefined inner logic volume area is larger, a new inner logical volume is defined in said undefined inner logical volume area and data recorded in the area of the logical volume number designated by said control utility is copied into said undefined inner logical volume area, and a new inner logical volume number is set in a newly defined inner logical volume area in response to completion of the copying (figure 13a), and

in the case where the capacity of said undefined inner logical volume area is insufficient, according to an instruction from said control utility, assignment of a logical volume number which is described in said logical volume number map and is seen from said computer and an inner logical volume number of said storage corresponding to the inner logical volume number seen from the computer is changed to thereby enable a plurality of inner logical volume numbers of said storage corresponding to the logical volume seen from said computer to be assigned (figure 22).

In regards to claim 9, Stallmo discloses said logical volume number map includes the logical volume number seen from said computer, the logical volume number in said

storage, and logical volume number combining information describing a combining relation between the logical volume number seen from said computer and the inner logical volume number of said storage (figure 19),

according to an instruction from said control utility, with respect to an inner logical volume of the storage of which correspondence with the computer is undefined, said logic volume control means describes a new combining relation between the logical volume number seen from the computer and the inner logical volume number in said storage into the logical volume number map, thereby changing the logical volume construction (figure 22), and

the construction change of the logical volume assigned to said computer is recognized by said logical volume recognizing means (via structure in figure 19).

In regards to claim 10, Stallmo discloses the number of blocks indicative of a size of said inner logical volume is described in said logical volume number map, and when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including the immediately preceding inner logic volume is used as the top address of each inner logical volume (column 18 lines 15-24).

In regards to claim 11, Stallmo discloses the number of blocks indicative of a size of said inner logical volume is described in said logical volume number map, and when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of

blocks of the inner logic volumes including the immediately preceding inner logic volume is used as the top address of each inner logical volume (column 18 lines 15-24).

In regards to claim 12, Stallmo discloses said logical volume number map, when a new inner logical volume number is set in the newly defined inner logical volume area, an area corresponding to the logical volume number designated by said control utility is changed to an inner logical volume whose correspondence with said computer is not defined (figure 13a).

In regards to claim 13, Stallmo discloses logical volume control means allows said computer to access said storage on both an area corresponding to a logical volume number designated by said control utility and an inner logical volume area newly defined (column 5 lines 41-43).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Stallmo et al. US Patent 6,289,398 discloses RAID arrays with modular control units to communicate configuration information.

Stallmo et al. US Patent 6,052,759 discloses constructing RAID arrays form unequal sized disks.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A Baker whose telephone number is (703)305-3304. The examiner can normally be reached on M-F 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (703)306-2903. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

PB

Mano Padmanabhan
10/20/03

MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER
TC 2100